

KEYS TO FLIES OF THE FAMILIES LONCHAEIDAE,
PALLOPTERIDAE, AND SAPROMYZIDAE OF THE
EASTERN UNITED STATES, WITH A LIST OF THE
SPECIES OF THE DISTRICT OF COLUMBIA REGION.

By J. R. MALLOCH and W. L. McATEE,

Of the United States Biological Survey.

This paper contains a list of the species in the families Lonchaeidae, Pallopteridae, and Sapromyzidae that have been collected in the vicinity of the District of Columbia. To facilitate identification of the species so recorded, synopses of the genera and species are included which embrace all the species known to the authors which have been recorded from the territory east of the Mississippi River, and also all species likely to occur in that territory.

Many authors consider the families dealt with in this paper as subfamilies of Sapromyzidae, but there is very little real similarity between Sapromyzidae and Lonchaeidae. The Pallopteridae appear to be more closely related to the Lonchaeidae than to the Sapromyzidae, but there are some very important points of difference between this family and the other two which are emphasized in the discussion of the family characters.

All three families belong to the acalyptrate section of the Cyclorhapha, having the abdominal spiracles in the membrane between the tergites and the sternites, close to the former. The auxiliary vein is present and complete, vibrissae are absent, and the basal cells of the wings are complete, the posterior one not prolonged at its apical posterior angle, characters which separate these families from most of their allies.

The very well developed frontal lunule of the Lonchaeidae which invades the anterior margin of the interfrontalia more or less triangularly and is generally setulose (fig. 2), the presence of a stigmal and propleural bristle, very small size of preapical tibial bristle, and the complete, though apically indistinct, bisinuate sixth wing vein (fig. 4) separates the family from any other. No family which has the ovipositor very much elongated and sword-shaped, as has this one, has the propleura bare above the bristle and the

frons as described above. Other characters that may be mentioned are: Orbital bristle 1; and dorsocentrals, two pairs. The family is more closely related to Ortalidae than to Sapromyzidae.

The Pallopteridae resemble the Lonchaeidae in having the ovipositor elongate sword-shaped, but the frons is transverse at its anterior margin as in Sapromyzidae, and the frontal lunule is concealed; the propleural bristle is absent or present; stigmatal bristle absent, or present but weak; sixth wing vein traceable to margin, straight; preapical dorsal tibial bristle absent; each orbit with one bristle as in Lonchaeidae; propleura bare.

The Sapromyzidae have no stigmatal bristle, and in this respect agree with many allied families, but the propleura are bare; the sixth wing vein is shorter than the seventh; the posterior basal cell of wing is very small and is not prolonged at apex; usually one or more pairs of the tibiae have a distinct preapical bristle, and both the mesopleura (except in *Periscelis*) and sternopleura have one or more strong bristles. Each orbit in American genera (except *Periscelis*) with two bristles; the frontal lunule is concealed; the anterior margin of frons transverse; postvertical bristles convergent or cruciate; propleural bristle present. The ovipositor is never sword-shaped.

Our only representative of the Pallopteridae occurs in humid, well-shaded localities; the Sapromyzidae, on the other hand, are rather inclined to sit in the sun and they are sometimes attracted to flowers. The immature stages of these families are practically unknown. The larvae of a number of Lonchaeidae are known, however, and they live in sappy places under bark or in decaying vegetation where they are predaceous; the adults are of more random occurrence than those of the other families here treated but agree with them in being attracted to light.

The number of species in the present list compared to that of the New Jersey State List of Insects¹ is:

Family.	New Jersey.	District of Columbia.
Lonchaeidae.....	2	10
Pallopteridae.....	1	1
Sapromyzidae.....	22	49

Of the 60 species here listed, 19 (indicated in text by asterisks) were originally described from material derived wholly or in part from our region. Thirty-two of the species have been collected on Plummer Island, Md., headquarters of the Washington Biologists' Field Club, and 17 others in adjacent parts of the Potomac River

¹ Ann. Rep. State Mus., (1909) 1910, Diptera by C. W. Johnson.

Valley. These facts of occurrence when not expressed in the detailed records are indicated by the abbreviations P. I. and V. P. I. respectively.

Previously described species, not yet collected, that should be obtainable in our region are: *Steganolauxania latipennis* Coquillett, New Jersey to Florida; *Lauxaniella opaca* Loew, New Jersey to Florida; and *Sapromyza resinosa* Wiedemann, New York to Florida.

Family LONCHAEIDAE.

Only one genus of this family has hitherto been recognized in North America, but there is every reason to believe that the group *Earomyia* Zetterstedt is entitled to at least subgeneric rank. Three of the species (*aberrans*, *aterrina*, and *nigrociliata*) included in this paper belong to *Earomyia*, having the frontal lunule bare, but they are included in the key to species of *Lonchaea* to facilitate identification and establish relationships.

The genotype of *Lonchaea* is *vaginalis* Fabricius, which has been stated by some European authors to be synonymous with *chorea* Fallén.

The genotype of *Earomyia* is *lonchaeoides* Zetterstedt, which for some obscure reason was renamed *frontata* by Becker in 1895.

The following key includes all species known to the authors to occur in North America. Some other species which have been recorded, we have not seen and do not attempt to include.

Genus LONCHAEA Fallén.

KEY TO SPECIES.

1. Frons in both sexes with large irregular pits or depressions; a strong bristle near anterior margin of cheek..... vibrissata Malloch.
Frons impunctate or almost so, not pitted..... 2
2. Several bristly hairs surrounding the stigmatal bristle..... 3
No hairs surrounding stigmatal bristle..... 11
3. Fringes of calyptrae black or fuscous..... 4
Fringes of calyptrae white or yellow..... 9
4. Third antennal segment much less than twice as long as its greatest width; frontal lunule bare; ovipositor abnormally wide..... aterrina Malloch.
Third antennal segment over twice as long as wide; frontal lunule with some hairs..... 5
5. Eyes in both sexes distinctly hairy, in the male conspicuously so; second costal division very long; disk of scutellum hairy..... 6
Eyes bare or almost so..... 7
6. Pteropleura hairy in center; cheeks with dense short erect fine hairs.
pleurisetata Malloch.
Pteropleura bare; cheeks with longer setulose hairs..... ursina Malloch.
7. Tarsi entirely black..... atritarsis Malloch.
Tarsi largely yellowish..... 8

8. Orbit with several long fine hairs above the bristle; cheeks, frons, and mesonotum with rather dense erect black hairs; wings whitish or yellowish, infuscated at bases; scutellum with some long erect hairs on disk near apex as well as on the margins; pteropleura usually with one or two long hairs in center-----*hirta* Malloch.
Orbits bare or with a single hair above bristle; cheeks, frons, and mesonotum with more sparse black hairs; scutellum generally bare on disk; pteropleura bare-----*affinis* Malloch.
9. Third antennal segment but little longer than wide; scutellum with four strong bristles and no fine hairs; face of male silvery; ovipositor of female nearly as broad as frons, acutely pointed at apex, the preapical hairs very short; auxiliary vein nearly fused with first at apex.
arkansensis Malloch
Third antennal segment about three times as long as wide; scutellum with some fine hairs on margins as well as the four long bristles; face of male not silvery; female ovipositor slender, very much narrower than frons. 10
10. Glossy upper portion of orbits black; orbital bristle not proximad of anterior ocellus; cheek with dense short stiff hairs; third antennal segment not over three times as long as wide, almost entirely orange red.
ruficornis Malloch.
Glossy upper portion of orbits blue; orbital bristle distinctly proximad of anterior ocellus; cheek with some short hairs and one or two longer bristles; third antennal segment over three times as long as its greatest width, upper half or more blackened; hind femur with several long bristles on apical half of anteroventral surface-----*winnemanae* Malloch.
11. Ovipositor of female nearly as wide as frons; calyptrae and their fringes white; tarsi largely yellowish; scutellum without fine hairs.
arkansensis Malloch.
Ovipositor slender, much narrower than frons; scutellum usually with fine hairs in addition to the strong bristles----- 12
12. Face and parafacials when viewed from above conspicuously whitish pruinulent; frons of female dark steel-blue, shining, sparsely and evenly haired, and with a transverse depression midway between anterior margin and anterior ocellus; third antennal segment but little longer than wide; a strong curved bristle near anterior margin of cheek; tarsi slightly pale basally; calyptrae and their fringes brown; no fine hairs on scutellum.
albiceps Malloch.
Face but little whitish pruinulent when viewed from above; frons not steel-blue, and without a transverse depression; cheek either without a strong bristle or with several----- 13
13. Legs entirely black----- 14
At least the bases of tarsi yellowish----- 17
14. Fringes of calyptrae brown or fuscous----- 15
Fringes of calyptrae white; cheek without strong bristles----- 16
15. Cheek with four outstanding bristles; no hairs between the scutellar bristles; frons slightly bluish or greenish; third antennal segment about 1.5 as long as wide----- *quadrisetosa* Malloch.
Cheek without outstanding bristles; some fine hairs between the apical pair of scutellar bristles; frons black-----*angustitarsis* Malloch.
16. Some fine hairs between the apical pair of scutellar bristles.
vaginalis Fallen.
No fine hairs between the apical pair of scutellar bristles.
marylandica Malloch.

17. Frontal lunule bare; fringes of calyptrae brown; interfrontalia with two series of incurved hairs on center; glossy portion of upper orbits microscopically strigose..... *aberrans* Malloch.
Frontal lunule with setulose hairs at least on the sides except in *nigrociliata*; fringes of calyptrae whitish or yellowish except in *nigrociliata* and *subpolita*; glossy portion of upper orbits usually smooth (compare *occidentalis* and *coloradensis*)..... 18
18. No minute hairs between the apical pair of scutellar bristles; third antennal segment not or barely over twice as long as its greatest width..... 19
Some minute hairs between the apical pair of scutellar bristles; third antennal segment more than twice as long as its greatest width..... 20
19. Tarsi brown; larger species, fully 4 mm. in length.... *marylandica* Malloch.
Tarsi pale yellow; smaller species, less than 4 mm. in length.
laticornis Meigen.
20. Fringes of calyptrae fuscous..... 21
Fringes of calyptrae white or yellow; thorax and abdomen bluish.... 22
21. Frontal lunule bare; head and thorax black, abdomen slightly bluish,
nigrociliata Malloch.
Frontal lunule hairy; thorax and abdomen blackish blue...*subpolita* Malloch.
22. Width of male frons at anterior margin equal to at least half the entire length of frons; preapical dorsal pair of hairs on ovipositor very long; hairs at angle of calyptrae much longer than rest of fringe; upper orbits largely microscopically strigose..... *occidentalis* Malloch.
Width of male frons at anterior margin not nearly equal to half its entire length; preapical dorsal hairs on ovipositor very short; fringes of calyptrae of uniform length..... 23
23. Third antennal segment about twice as long as wide; upper frontal orbits granulose..... *coloradensis* Malloch.
Third antennal segment at least three times as long as wide; upper frontal orbits largely or entirely polished..... 24
24. Only the basal segment of each tarsus yellow..... *longicornis* Williston.
Basal two or three segments of each tarsus yellow..... 25
25. Larger species, over 4 mm. in length; hypopygium as in Figure 3,
nudifemorata Malloch.
Smaller species, less than 4 mm. in length; hypopygium of male as in Figure 1..... *polita* Say.

LIST OF SPECIES OF THE DISTRICT OF COLUMBIA REGION.

L. aberrans Malloch.—Mount Vernon, Virginia, April 19, 1917, McAtee.

* *L. albiceps* Malloch.—Washington, District of Columbia, May 29, 1912, McAtee.

L. laticornis Meigen.—Common and widely distributed; dates of collection range from May 8 to October 3; comes to light. P. I.

* *L. marylandica* Malloch.—Plummer Island, Maryland, bred April 24, 1915, from larva collected under bark, April 7, H. S. Barber.

* *L. nudifemorata* Malloch.—Plummer Island, Maryland, April 21, 1912, McAtee; Falls Church, Virginia, May 10, N. Banks.

L. polita Say.—The most numerous species; the season for active imagines runs from March 29 to October 29; the species has been

bred from old pumpkin vines, cabbage stalks, and butternut hulls; comes to light. P. I.

L. ruficornis Malloch.—Washington, District of Columbia, May 29, 1914, L. O. Jackson.

* *L. quadrisetosa* Malloch.—Plummer Island, Maryland, August 11, 1912, McAtee; June 3, 1914, R. C. Shannon; District of Columbia. D. W. Coquillett.

L. vibrissata Malloch.—Cupid's Bower Island, Maryland, July 8, 1915, R. C. Shannon; Stubblefield Fall, Virginia, October 23, 1921. Malloch; Falls Church, Virginia, May 10, N. Banks; Mount Vernon, Virginia, July 4, 1917, at honey dew, McAtee.

* *L. winnemanæ* Malloch.—Cupid's Bower Island, Maryland. July 8, 1915; Dead Run, Virginia, April 11, 1915, R. C. Shannon; Virginia near Plummer Island, April 18, 1909, McAtee; Falls Church, Virginia, June 6, August 25, N. Banks; College Park, Maryland, May 25, 1913, F. Knab.

Family PALLOPTERIDAE.

This family is represented by but one genus in North America, a key to the species of which follows:

Genus PALLOPTERA Fallén.

KEY TO SPECIES.

1. Thorax with one or two pairs of dorsocentral bristles, the anterior one when present weak; propleural bristle absent; stigmal bristle weak or absent; prescutellar pair of acostichals absent..... *subarcuata* Johnson.
Thorax with four pairs of dorsocentrals, the anterior pair sometimes weak..... 2
2. Mesopleura bare..... 3
Mesopleura setulose..... 8
3. Both cross-veins of wings unclouded..... 4
At least the outer cross-vein of wings distinctly clouded..... 6
4. Humeri entirely gray, concolorous with disk of thorax
claripennis Malloch, new species.
Humeri yellow, contrasting with the gray disk of thorax..... 5
5. Thorax with about four series of weak whitish hairs between the anterior pair of dorsocentrals; stigmal bristle absent..... *terminalis* Loew.
Thorax with about eight series of short black setulose hairs between the anterior pair of dorsocentrals; stigmal bristle present but weak
ustulata Meigen.
6. Thorax gray, densely pruinulent, humeri yellow; wing with the costal cell almost entirely infuscated, and an infuscation at apex
subusta Malloch, new species.
Thorax yellowish; wing with the entire costal region broadly infuscated..... 7
7. Propleural and stigmal bristles both absent; head thorax, and abdomen grayish pruinulent..... *setosa* Melander.
Propleural bristle present; stigmal bristle absent; thorax and abdomen not gray pruinulent..... *albertensis* Johnson.

9. Abdomen without distinct black markings on tergites..... 9
 Abdomen with either round spots or black vittae on apices of tergites... 10
9. Costa brown from near base to apex..... *juconda* Loew.
 Costal cell and a space beyond apex of first vein hyaline... *arcuata* Fallen.
10. Abdominal tergites with conspicuous black spots near apices from which
 the bristles arise; propleural bristles absent..... *superba* Loew.
 Abdominal tergites with the posterior margins narrowly and the sides
 broadly black; propleural bristle present..... *similis* Johnson.

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P. superba Loew.—A handsome fly which is fairly numerous in damp shady localities of the Piedmont region; it has been collected from June 8 to October 28; and is known to come to light. P. I.

DESCRIPTIONS OF TWO WESTERN SPECIES.

The two following new species have the head, scutellum, abdomen and legs yellowish testaceous, and the thorax black with dense gray pruinescence. In *claripennis* the humeri are also gray, while in *subusta* they are yellowish testaceous.

PALLOPTERA CLARIPENNIS Malloch, new species.

Male.—Distinguished from all other species of the genus by the entirely clear wings. Structurally similar to *ustulata*.

Length, 3.25 mm.

Type.—Palo Alto, California, August 3, 1895, Lot. 84, (Type Cat. No. 26387, U.S.N.M.)

PALLOPTERA SUBUSTA Malloch, new species.

Male.—Differs from *usta* Meigen in having the fuscous markings of wings smaller, the one at apex of wing being much less distinct, that on outer cross-vein not extending behind fifth vein, and the infuscation in subcostal cell not extending beyond the veins bounding the cell. The abdomen is pale yellowish testaceous, not black.

Length, 4–5 mm.

Type and one paratype.—Palo Alto, California, August 3, 1895; one paratype, Stanford University, California, September 30, 1901. (Type Cat. No. 26388, U.S.N.M.)

Family SAPROMYZIDAE.

KEY TO GENERA.

1. Basal antennal segment elongated, as long as or almost as long as the elongated second segment, with some minute setulose hairs at apex below; third segment much more than four times as long as wide, appearing cylindrical; face convex..... 2
- Basal antennal segment short, not as long as second, bare at apex below. 4

2. Sternopleurum with two strong bristles; arista with very dense short hairs above and below..... *Lauxania* Latreille.
Sternopleurum with only one strong bristle; arista long haired above... 3
3. Marginal cell of wing very much narrower than submarginal, equally wide on its entire length..... *Steganolauxania* Frey.
Marginal cell at its widest part as wide as submarginal, much narrowed from apex of first vein basad..... *Lauxaniella* Malloch.
4. Anterior orbital bristle absent..... *Periscelis* Loew.
Anterior orbital bristle present..... 5
5. Anterior orbital bristle directed inward..... 6
Anterior orbital bristle directed backward..... 8
6. Ocellar bristles minute; face much swollen, projecting very much beyond eyes in profile; anterior pair of orbital bristles small, closer together than the upper pair, and situated very distinctly nearer to bases of antennae than to upper pair..... *Physogenia* Macquart.
Ocellar bristles long and strong; face not or but little projecting; anterior orbital bristles large..... 7
7. Anterior orbital bristles strong, situated about midway between bases of antennae and upper pair and in line with them; face glossy, with a distinct rounded central convexity; third antennal segment slender, longer than height of head..... *Pachycerina* Macquart.
Anterior pair of orbital bristles moderately strong, situated very close to upper pair; face not glossy, with a very slight longitudinal convexity or almost flat; third antennal segment tapered, not as long as height of head, *Camptoprosopella* Hendel.
8. Either second or third wing-vein with setulose hairs basally..... 9
Second and third wing-veins bare..... 11
9. Setulae present on base of second vein before furcation of third, *Xenochaetina* Malloch.
Setulae present on base of third vein distad of furcation from second... 10
10. Fore femur with a comb of short black setulae on apical third of antero-ventral surface; pteropleura with some fine black hairs in center, *Eusapromyza* Malloch (European).
Fore femur without a comb of setulae as above; pteropleura bare, *Peplomyza* Haliday (European).
11. Presutural bristle absent; head longer than high, face much receding below; orbits rather densely covered with minute black hairs at bases of antennae, *Trigonometopus* Macquart.
Presutural bristle present; head higher than long, the face not much receding below, and the orbits not noticeably haired at bases of antennae..... 12
12. Sternopleurum with one strong bristle..... 13
Sternopleurum with two strong bristles, the anterior one the weaker... 14
13. Frons broader than long, concave in center anteriorly; ocellar bristles minute; thorax with three pairs of dorsocentrals and one pair of prescutellar acrostichals..... *Neogriphoneura* Malloch.
Frons sometimes longer than broad, not concave in center anteriorly; thorax with two pairs of dorsocentrals..... *Deceia* Malloch.
14. Face decidedly and evenly convex, glossy..... *Caliope* Haliday.
Face flat or not evenly convex, opaque or subopaque..... 15
15. Intra-alar bristle present; the small black costal setulae on wing continued beyond apex of second vein but not extending to apex of third, *Minettia* Robineau-Desvoidy.
Intra-alar bristle absent..... 16

16. Scutellum convex above, much broader than long; second wing-vein undulated; face with a slight transverse ridge near mouth-margin; wing fuscous, with small clear spots.....*Trypetisoma* Malloch.
 Scutellum more or less flattened above; second wing-vein not undulated; face without a transverse ridge; wings not marked as above..... 17
17. The small black setulae continued beyond apex of second vein but not continued to apex of third.....*Sapromyza* Fallen.
 The small black costal setulae continued to apex of third vein where they abruptly cease.....*Sapromyzosoma* Malloch.²

Genus LAUXANIA Latreille.

KEY TO SPECIES.

1. Knobs of halteres, bases of wings, and fore legs except the bases of tibiae black; dorsocentrals 3.....*cylicornis* Fabricius.
 Knobs of halteres, bases of wings, and a part of fore legs yellowish..... 2
2. Dorsocentrals 3; fore tibiae black.....*nigrimanus* Coquillett.
 Dorsocentrals 4; fore tibiae yellow.....*albiseta* Coquillett.

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L. cylindricornis Fabricius.—Fairly numerous in Piedmont localities; has been collected from April 16 to June 29. P. I.

Genus STEGANOLAUXANIA Frey.

This genus is represented in our general region by one species, *latipennis* Coquillett. The genus was erected by Frey in 1918 and is closely related to *Steganopsis* de Meijere described from the Dutch East Indies.

Genus LAUXANIELLA Malloch.

Generic characters.—Differs from *Lauxania* in having only one sternopleural bristle. In the structure of the antennae it is similar to that genus and differs from other genera.

Genotype.—*Lauxania femoralis* Loew.

KEY TO SPECIES.

1. Knobs of halteres yellow; interfrontalia largely velvety black; thoracic dorsum not vittate..... 2
 Knobs of halteres black; interfrontalia not velvety black; thoracic dorsum vittate..... 3
- Knobs of halteres whitish, a velvety black spot on each side of interfrontalia at middle and another on outer side of orbit at middle; prescutellar acrostichals present; dorsum of thorax not vittate, scutellum entirely velvety black; wings yellowish; tibiae and tarsi yellowish white (Texas),
signatifrons (Coquillett).

² *Sapromyzosoma citreifrons* male has the costal setulae very weak near the apex of third vein, but the marked wings, yellow color, and other characters associate it more definitely with this genus than with *Sapromyza*. The female is typical of this genus.

2. Prescutellar acrostichals absent; tibiae and metatarsi of fore legs black, apical four tarsal segments white; wings largely infuscated; scutellum not velvety black..... *manuleata* (Loew).
 Prescutellar acrostichals present; tibiae and tarsi of fore legs white; wings yellowish; scutellum largely velvety black..... *femoralis* (Loew).
3. Median dorsal vitta of thorax continued to posterior margin, not attenuated posteriorly; orbits entirely gray pruinulent; wings but little darkened at bases; stout species..... *opaca* (Loew).
 Median dorsal vitta of thorax not continued to posterior margin, or if so only as a slender line; orbits only gray pruinulent round bases of bristles; wings fuscous at bases; slender species..... *trivittata* (Loew).

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L. femoralis Loew.—Spring Hill, Virginia, August 26, 1922, H. L. Viereck; Falls Church, Virginia, June 26, July 5, August 24, September 17; High Island, Maryland, July 8, N. Banks; Glen Echo, Maryland, August 3, 6, 1922, L. L. Buchanan; July 30, August 2, 1922, Malloch.

L. trivittata Loew.—Has been collected several times in the Piedmont area, at dates ranging from June 14 to August 22; taken twice on flowers of *Ceanothus americanus*. P. I.

Genus **PHYSOGENIA** Macquart.

We have seen but one species from America, *vittata* Macquart, represented in material from Cuba, Brazil, and Nicaragua.

Genus **PACHYCERINA** Macquart.

We have seen only one species of this genus from America, represented by specimens from Florida and Nicaragua. These were named *flavida* Wiedemann, by Coquillett, and probably are the same species as *ornata* Melander, described from Mexico, synonymy we venture even though Wiedemann's description of the thoracic coloration does not agree exactly with that of the specimens above referred to.

Genus **CAMPTOPROSOPELLA** Hendel.

Two species of this genus occur in our region which may be separated by the characters cited below.

KEY TO SPECIES.

1. Wings hyaline, immaculate..... 2
 Wings fuscous or marked with fuscous..... 3
2. Fore legs not darker than mid and hind pairs; arista loosely long plumose, *vulgaris* Fitch.
 Fore legs distinctly darker than mid and hind pairs, the tarsi and apices of tibiae subfuscous; arista with shorter and more dense plumosity; hypopygium as in Figure 17..... *verticalis* Loew.

3. Wings entirely or almost entirely fuscous; thorax with a medium brown vitta----- *dolorosa* Williston.
 Wings with the cross-veins and costal and apical margins fuscous; thorax yellow----- *maculipennis* Malloch.

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C. verticalis Loew.—Much rarer than *vulgaris*; Woodridge, District of Columbia, August 22, 1915, J. Silver; Beltsville, Maryland, June 9, 1915, August 14, 1914, McAtee. Has been taken in Illinois in sandy regions along the Mississippi River and we have also seen it from Florida.

C. vulgaris Fitch.—The commonest species of the family in North America, occurring throughout our region in woodlands; extreme dates of collection; May 20 and October 12: comes to light; occasionally on flowers. P. I.

Genus XENOCHAETINA Malloch.

Generic characters.—Similar in general habitus to *Caliope*, but the base of the second wing-vein has one or two small setulae on upper side. The fore femur has a comb of minute setulae beyond middle on anteroventral surface as in many species of *Sapromyzosoma*.

Genotype.—*Lausania muscaria* Loew.

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X. muscaria Loew.—Common in the Piedmont region; the season as at present known extends from May 14 to October 16. P. I.

Genus TRIGONOMETOPUS Macquart.

A key to the species of this genus appeared in 1923.³

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T. vittatus Loew.—Stubblefield Fall, Virginia, October 23, 1921, Malloch.

Genus NEOGRIPHONEURA Malloch.

Generic characters.—Frons concave on anterior half in center, viewed from above the anterior margin has a rounded central emargination; ocellar bristles minute, very much smaller than the post-vertical pair; anterior orbital bristles long and strong, directed slightly mesad and caudad; eyes tapered below; face slightly convex, the lower margin a little protuberant; mouth with a slight rim; arista plumose above, short haired on apical half below; sternopleu-

³ Proc. Ent. Soc. Wash., vol. 25, p. 48, 1923.

rum with one strong bristle; area of mesonotum between dorsocentral and supra-alar bristles bare; hypopygium small; costa as in *Minettia*.

Genotype.—*Sapromyza sordida* Wiedemann.

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N. sordida Wiedemann.—Dead Run, Virginia, August 3, 1915, V. A. Roberts. This species is represented also in material examined by us from Sebastian and Paradise Key, Florida, and Knoxville, Tennessee. It was originally described from the West Indies, and has been recorded from Porto Rico, St. Vincent, and Georgia in addition to the above. It is represented in the United States National Museum collection by specimens from Lake Worth, Florida, Texas, and Nicaragua.

Genus DECEIA Malloch.

Generic characters.—Differs from *Minettia* in having one sternopleural bristle, and two pairs of dorsocentrals, and the intra-alar absent. All tibiae with a preapical dorsal bristle. From *Lauxaniella* it differs in having the basal antennal segment very much shorter than the second and bare at apex below, and third not four times as long as its greatest width except in *incongrua*.

This genus is divisible into four subgenera, as indicated in the key given below. The genus contains some species which appear to be related to other genera about as closely as they are to the typical species and in the future when material from other faunal regions is carefully studied it may be necessary to recognize as valid genera the groups now accepted as subgenera.

KEY TO SUBGENERA.

1. Frons distinctly longer than wide, rounded in profile; face and frons opaque; fore tibia of males distinctly and rather abruptly swollen from near base on dorsal surface; eyes narrowed below; upper side of arista with longer hairs than lower side..... **Deceia** Malloch.
Frons not longer than wide or if so not rounded in profile and the characters not otherwise as above..... 2
2. Frons longer than wide, flat in profile and opaque; face subopaque; eyes distinctly narrowed below..... **Neodeceia** Malloch.
Frons either not longer than wide or the face is distinctly glossy..... 3
3. Eyes distinctly narrowed below; frons more or less shining, but not uniformly so; face glossy, distinctly convex..... **Melanomyza** Malloch.
Eyes not narrowed below; frons uniformly subopaque; face almost flat, slightly shining..... **Trivialia** Malloch.

Subgenus NEODECIA Malloch.

This subgenus is represented by but one species in the fauna of the United States. It does not occur within our region, being confined to Florida and Cuba so far as known.

Type of the subgenus.—*Lauxania cineracea* Coquillett.

Subgenus TRIVIALIA Malloch.

LIST OF SPECIES OF THE DISTRICT OF COLUMBIA REGION.

* *Deceia (Trivialia) fuscocapitata* Malloch.—This species has been taken only once, in Virginia near Plummer Island, July 4, 1915, McAtee.

Subgenus DECEIA Malloch.

Type of the subgenus.—*Sapromyza crevecoeuri* Coquillett.

KEY TO THE SPECIES.

- Ocellar bristles parallel, at least as long as anterior orbitals and much longer than postvertical pair; the longest hairs on upper side of arista shorter than third antennal segment; palpi fuscous; fore tarsi whitish yellow----- *crevecoeuri* Coquillett.
- Ocellar bristles divergent, much shorter than the anterior orbitals and equal to postvertical pair; longest hairs on upper side of arista as long as third antennal segment; palpi yellow; fore tarsi whitish, apical segment in male black, in female brownish----- *wetmorei* Malloch.

LIST OF SPECIES OF THE DISTRICT OF COLUMBIA REGION.

D. crevecoeuri Coquillett.—Has been taken a number of times on Plummer Island, Maryland, from June 30 to August 6 (once at light); and at Glen Echo, Maryland, June 25 to August 22.

Subgenus MELANOMYZA Malloch.

Type of the subgenus.—*Laurania gracilipes* Loew.

KEY TO SPECIES.

- Frons without velvety black markings; hairs on upper side of arista barely longer than those on under side; antennae extending slightly beyond mouth-margin, third segment at least four times as long as wide; scutellum without velvety black margin----- *incongrua* Malloch.
- Frons with velvety black markings; hairs on upper side of arista much longer than those on under side; antennae not extending to mouth-margin, third segment not three times as long as wide; scutellum more or less broadly velvety black on posterior margin----- 2
- Frons with a large subquadrate velvety black spot in center anteriorly; ocellar triangle very short, not extending to middle of frons, *gracilipes* Loew.
- Frons with a wedge-shaped black mark on each side of interfrontalia anteriorly, frontal triangle extending to anterior margin of frons, rather broad anteriorly; orbits almost glossy, the shining stripe not interrupted between the bristles; scutellum velvety black only on margin, *intermedia* Malloch.
- Frons largely velvety black anteriorly but more conspicuously so on the same areas as *intermedia*, the frons not so distinctly shining on orbits, the latter shining only on two small spots surrounding bases of the bristles, *scutellata* Malloch.

LIST OF SPECIES OF THE DISTRICT OF COLUMBIA REGION.

D. gracilipes Loew.—Common; has been collected from June 19 to September 17; in copula August 6; comes to light. P. I.

**D. intermedia* Malloch.—Common; the known season extends from June 11 to September 12; is attracted to light. P. I.

**D. scutellata* Malloch.—Common; dates of collection range from May 30 to August 29; obtained thus far only in Piedmont localities. P. I.

Genus CALIOPE Haliday.

We have retained in this genus two species which appear to be closely related to the genotype, but as the latter is not available to us we can not say definitely whether they really belong to the genus or not. The two species may be separated by means of the synopsis below.

KEY TO SPECIES.

1. Intra-alar bristle present; sternopleurum with two bristles; species yellow, *lutea* (Coquillett).
 Intra-alar bristle absent; sternopleurum with two bristles; species largely black..... *flaviceps* Loew.

LIST OF SPECIES OF THE DISTRICT OF COLUMBIA REGION.

**C. flaviceps* Loew.—Rosslyn, Virginia, April 23, 1913, R. C. Shannon.

Genus MINETTIA Robineau-Desvoidy.

KEY TO SPECIES.

1. Knobs of halteres black; prosternum bare; thorax and abdomen black..... 2
 Knobs of halteres yellow; prosternum usually with a few hairs..... 4
2. All tarsi yellowish; male hypopygial forceps slender, heavily chitinized and glossy on their apical halves; face with two small rounded humps near mouth margin..... *longipennis* Fallen.
 Only mid and hind tarsi yellowish, the fore pair blackened; hypopygial forceps of male stout; face without two small humps as above.... 3
3. Thorax with four pairs of dorsocentral bristles; usually four series of setulae between the dorsocentrals; male hypopygium as in figures 5, 6, 7. *americana* Malloch.
 Thorax with three pairs of dorsocentrals; six series of setulae between the dorsocentrals; male hypopygium as in figure 8..... *obscura* Loew.
4. Thorax and scutellum black, densely pale gray pruinose, the margin of scutellum sooty black; abdomen yellowish testaceous; not annulated, fore and mid femora and fore tibiae partly blackened male hypopygium as in figure 9..... *lupulina* Fabricius.
 Thorax and scutellum not as above; if gray pruinose the scutellum has no sooty black margin..... 5

*This species has been recorded from North America, but erroneously. The records without doubt refer to one or other of the next two species in key.

5. Face pale shining testaceous, with a round shining brown or blackish spot on each side at middle; frons and parafacials concolorous with face, the former with three elongate black stripes, the latter with two round blackish spots, one at base of antenna and the other below eye,
eucephala Loew.
 Face not as above, unspotted, with a single central velvety black spot, or if with two blackish spots the entire head is densely gray pruinulent and the other markings are not as above..... 6
6. Face without a central velvety black spot..... 7
 Face with a central velvety black spot..... 15
7. Thorax largely or entirely blackish and densely gray pruinulent; hind tibia with a fuscous band near base and another at apex..... 8
 Thorax and abdomen yellowish testaceous, shining; hind tibia unicolorous yellowish, not annulate..... 11
8. Palpi black; large species, about 5 mm. in length; abdomen gray pruinulent, the apical two segments each with a narrow fuscous fascia, scutellum not subtruncate at apex..... *buchanani* Malloch, new species.
 Palpi yellow; species in other respects not as above..... 9
9. Large species, 5-6 mm. in length; each abdominal tergite with a fuscous fascia anteriorly..... *magna* Coquillett.
 Smaller species, averaging less than 4 mm. in length; abdominal tergites without complete fasciae..... 10
10. Each abdominal tergite with a brownish black transverse spot on each side; abdomen yellowish..... *glauca* Coquillett.
 Abdomen yellowish testaceous and without lateral spots..... *cana* Melander.
11. One of the setulae near upper extremity of the series on side of face strikingly longer and stronger than the others; arista almost bare,
ordinaria Melander.
 All the lateral facial hairs small and weak; arista plumose or short-haired..... 12
12. Arista plumose; dorsum of thorax immaculate or with a more or less distinct grayish or fuscous median stripe; ocellar bristles longer than postvertical pair; second abdominal tergite of female with several long bristles on each side of posterior margin; abdomen unspotted but sometimes indistinctly fasciate..... 13
- Arista short-haired, small species, not over 3 mm. in length; dorsum of thorax with a small brown spot at base of each bristle and hair; ocellar bristles very small; abdomen with a blackish central spot on each tergite except the first, and a smaller spot on each side of the apical two or three tergites..... *punctifer* Malloch.
13. Wings distinctly infuscated..... *fumipennis* Melander.
 Wings yellowish..... 14
14. Thorax immaculate..... *flaveola* Coquillett.
 Thorax with a grayish or fuscous central stripe,
flaveola, var. *univittata* Coquillett.
15. Scutellum with a black mark on each side; base of antennae black..... 16
 Scutellum and antennae entirely yellow..... 17
16. Pleura immaculate..... *octopunctata* Wiedemann.
 Pleurae with one or two black spots. *octopunctata*, var. *slossonae* Coquillett.
17. Thorax quadrivittate; abdomen with conspicuous brown spots,
valida Walker.
 Thorax and abdomen testaceous, immaculate..... *puncticeps* Coquillett.

LIST OF SPECIES OF THE DISTRICT OF COLUMBIA REGION.

**M. americana* Malloch.—Common; has been collected from April 24 to June 22. P. I.

* *MINETTIA BUCHANANI* Malloch, new species.

Male.—Similar in color to *magna*, but the palpi are black, and the abdomen is densely gray pruinose with a narrow fuscous fascia on middle of third and another on fourth tergites. The general habitus is similar to that of *magna*, but the arista has the hairs shorter than width of third antennal segment, the scutellum is not subtruncate apically between the bristles, there are more outstanding setulae in center of mesopleura which extend to below the bristle, and the size is smaller.

Length, nearly 5 mm.

Type.—Beltsville, Maryland, May 21, 1922, swept from herbage in woodland (J. R. Malloch). Cat. No. 26389 U. S. N. M.

**M. glauca* Coquillett.—Great Falls, Virginia, May 19, 1915, McAtee; Virginia near Plummer Island, May 20, 1914, R. C. Shannon; Maryland near Plummer Island, June 5, 1903, W. V. Warner; Beltsville, Maryland, May 2, 1915, on flowers of *Aronia arbutifolia* McAtee; Marlboro, Maryland, May 13, H. S. Barber.

M. lupulina Fabricius.—Very common; the extreme dates of collection are May 14 and October 5; has been taken on flowers of *Ceanothus americanus*, and *Tephrosia virginica*. P. I.

**M. magna* Coquillett.—This, the largest local species of the family, is fairly common; it has been collected from May 31 to September 17. V. P. I.

M. obscura Loew.—Very common; the season as at present known runs from April 25 to June 29; comes to light; and has been collected on the flowers of *Aruncus aruncus*. P. I.

M. ordinaria Melander.—Plummer Island, Maryland, August 26, 1902, E. A. Schwarz and H. S. Barber; Chain Bridge, Virginia, September 18, 1921, Malloch; Washington, District of Columbia, August 13, N. Banks.

M. puncticeps Coquillett.—Plummer Island, Maryland, May 25, 1902, H. S. Barber; May 23, 1914, June 8, 1914, at light, R. C. Shannon; June 15, 1905. D. H. Clemons.

M. valida Walker.—Has been collected several times at dates ranging from May 1 to October 14; comes to light. P. I.

Genus *SAPROMYZA* Fallén.

KEY TO SPECIES.

1. Wings black, with numerous small clear spots, the most conspicuous one at apex; head, thorax and apical abdominal segment with numerous small

- brown spots and dots, the greater part of abdomen dark brown, with pale gray pruinose spots at bases of bristles and setulae; thorax with four pairs of dorsocentrals and four or five pairs of strong acrostichals,
stictica Loew.⁵
- Wings clear, or at least without small clear spots on a dark ground---- 2
2. Wings with the anterior, or costal, half, and the cross-veins browned; thorax quadrivittate with brown, and with three pairs of dorsocentrals and only one, prescutellar, pair of strong acrostichals; second costal division less than half as long as first; one genal hair much longer and stronger than the others----- *umbrosa* Loew.
- Wings entirely hyaline; thorax with one pair of acrostichals----- 3
3. Frons wholly glossy black, sometimes yellowish on anterior margin; thorax and abdomen wholly black, shining, the former with four pairs of dorsocentrals; face glossy black in center; second costal division a little less than half as long as first----- 4
- Frons not wholly glossy black, usually some part of it yellowish and except in the entirely yellow species with distinct pruinescence; if largely or entirely shining black, there are only three pairs of dorsocentrals; thorax with two to four pairs of dorsocentrals----- 5
4. Face and frons highly glossy, without pruinescence; third antennal segment at least four times as long as wide, not tapered to apex; longest hairs on arista decidedly longer than its basal diameter; acrostichals between dorsocentrals in two series----- *quadrisetosa* Thomson, variety.
- Face with distinct gray pruinescence below antennae; third antennal segment not over 2.5 times as long as broad, tapered apically; longest hairs on arista not longer than its basal diameter; acrostichals between dorsocentrals in four series----- *nigerrima* Melander (= *blaisdelli* Cresson).
- Face with distinct gray pruinescence below antennae; third antennal segment at least three times as long as broad, tapered apically; longest hairs on arista longer than its basal diameter; acrostichals between dorsocentrals in four series-- *quadrisetosa* Thomson (= *vanduzeei* Cresson?).
5. Thorax with four pairs of dorsocentrals and distinct brown vittae; abdomen with brown dorsal spots; second costal division much shorter than half as long as first----- 6
- Thorax with two or three pairs of dorsocentrals; second costal division almost or quite half as long as first----- 10
- Thorax with four pairs of dorsocentrals, and without vittae; abdomen largely fuscous, without dorsal spots; second costal division fully half as long as first; legs entirely yellow; a large portion of third antennal segment and the palpi fuscous----- *fusciventris* Malloch.
6. Fore femur without a comblike series of minute setulae between middle and apex on anteroventral surface; bristles on posterior margins of dorsal abdominal segments not set in black or brown spots; no dark spot in front of mesonotal suture laterad of the outer vitta----- 7
- Fore femur with a comblike series of minute setulae between middle and apex on anteroventral surface; bristles on posterior margins of dorsal abdominal segments set in black or brown spots; a brown or fuscous spot in front of suture on mesonotum laterad of the outer vitta----- 9

⁵ See p. 25. This is now placed in a new genus but because of similarity to species of *Sapromyza* is included in the above key.

7. Apices of tibiae pale; superior forceps of male hypopygium long, but not very slender, their inner margins on apical third minutely serrate, inferior pair cleft at apices, the arms of dissimilar lengths; fifth sternite with two slender chitinized processes on posterior margin which are directed backward (figs. 10, 10a); no dark spot in middle of mesopleurum. **serrata** Malloch.
- Apices of tibiae blackened; superior forceps of male hypopygium not serrated on inner margins apically; usually a distinct brown spot in middle of mesopleurum----- 8
8. Superior forceps of male hypopygium short and stout, inferior pair with the apical branches of almost equal size; fifth sternite of male with two slender backwardly directed processes on posterior margin (figs. 11, 12). **obtusilamellata** Malloch.
- Superior forceps of male hypopygium long and slender, branches of inferior pair unequal in size (figs. 15, 15a); fifth sternite of male without processes on posterior margin----- **quadrilineata** Loew.
9. Superior forceps of male hypopygium long and slender, inferior pair long and slender, much curved, with a short tooth beyond middle (fig. 13); larger species, 4 mm. in length, color pale, the spots on abdomen sometimes but little darker than remainder of segment; central pale stripe on mesonotum distinctly narrowed at anterior extremity. **annulata** Melander.
- Superior forceps of male hypopygium short and stout, their apical margins concave (figs. 14, 14a); small species, 3 mm. in length; color darker, the spots on abdomen always fuscous and much darker than remainder of segment; central pale stripe on mesonotum not distinctly narrowed at anterior extremity----- **pictiventris** Malloch.
10. Thorax with two pairs of dorsocentrals; shining yellow species with a round shining black spot on each side of the apical two or three abdominal tergites----- **rotundicornis** Loew.
- Thorax with three pairs of dorsocentrals, abdomen not as above----- 11
11. Yellow species; frons glossy, with a black spot in middle; apical half of third antennal segment black (Wyoming, Montana)-- **cyclops** Melander.
- Yellow species; frons shining unicolorous yellow; third antennal segment slightly infuscated above on apical half----- **monticola** Melander.
- Black species frons largely, antennae entirely, blackish----- 12
12. Face with a round black or brown spot on each side in center; densely pale gray pruinulent species; thorax vittate; tibia with a pale band at base and another beyond middle----- **vittigera** Coquillett.
- Face immaculate; moderately pruinose species, with the thorax not vittate and tibia not banded----- 13
13. Face and frons highly polished, only the facial orbits gray pruinulent; face slightly bulbous in center just below antennae; third antennal segment at least three times as long as wide; arista short haired; acrostichals in four irregular series----- **elisae** Meigen.
- At least the face gray pruinulent, not bulbous; third antennal segment about twice as long as wide----- 14
14. Frons opaque, indistinctly reddish on anterior margin; thorax opaque, with rather dense brownish pruinulence, the acrostichals in two series; arista nearly bare----- **brachysoma** Coquillett.
- Frons shining, especially on orbits, conspicuously reddish testaceous on anterior margin; thorax shining, faintly gray pruinulent, the acrostichals in four series between anterior dorsocentrals; arista pubescent, **hyalinata** Meigen (= **nigrans** Melander).

LIST OF SPECIES OF THE DISTRICT OF COLUMBIA REGION.

S. annulata Melander.—Fairly common in Piedmont areas; has been taken at Difficult Run, Virginia, September 14, 1913, R. C. Shannon; on Plummer Island, Maryland, June 8, 1914, at light, June 14, 1913, and July 31, 1913, R. C. Shannon; May 30, 1907, and June 7, 1914, McAtee, August 3, 1915, at light, V. A. Roberts; at Glen Echo, Maryland, at six dates extending from July 10 to August 28, Malloch; Maywood, Virginia, May 21, 1922, McAtee; and Beltsville, Maryland, May 21, 1922, Malloch.

S. brachysoma Coquillett.—Stubblefield Fall, Virginia, October 23, 1921, Malloch; Dead Run, Virginia, March 13, 28, 1915, March 12, 1916, March 13, 1922; April 4, 1915; and Maryland near Plummer Island April 5, 1914, R. C. Shannon.

**S. obtusilamellata* Malloch.—Glen Echo, Maryland, July 17, 23, 1921, June 11, 1922; Cabin John, Maryland, July 31, 1921, Malloch.

**S. pictiventris* Malloch.—Fairly common; the season as at present known extends from April 23 to August 24. P. I.

S. quadrilineata Loew.—Very common; extreme dates of collection are April 24 and September 23; comes rather frequently to light. P. I.

**S. serrata* Malloch.—District of Columbia, D. W. Coquillett: Rock Creek, District of Columbia, June 15, 1913, R. C. Shannon; Glen Echo, Maryland, June 1, 18, 25, July 2, 9, 1922, Malloch.

**S. umbrosa* Loew.—Plummer Island, Maryland, June 8, 1914, at light, E. A. Schwarz and R. C. Shannon; Glen Echo, Maryland, June 25, July 2, 1922, Malloch; Beltsville, Maryland, June 23, 1918, July 4, 1915, McAtee; June 25, 1915, R. C. Shannon; May 21, 1922, Malloch; Odenton, Maryland, June 20, 1915, June 11, 1922, McAtee.

S. vittigera Coquillett.—Stubblefield Fall, Virginia, October 23, 1921; Glen Echo, Maryland, June 11, 1922, Malloch.

Genus SAPROMYZOSOMA Malloch.

KEY TO SPECIES.

- | | |
|--|----|
| 1. Wings with at least both cross-veins and the apices of second, third, and fourth veins distinctly infuscated..... | 2 |
| Wings with at most the cross-veins distinctly infuscated..... | 16 |
| 2. Third vein with two fuscous spots in addition to the one at inner cross-vein and the one at apex..... | 3 |
| Third vein with only one fuscous spot in addition to the one at inner cross-vein and the one at apex..... | 6 |

3. Hind femur of male with many black setulae ventrally; thorax with three pairs of dorsocentral bristles; arista long haired; hind femur without preapical anteroventral bristle..... *notata* Fallen [European only].
Hind femur of male without black setulae ventrally; arista short haired. 4
4. Hind femur without an anteroventral bristle near apex; thorax with four pairs of dorsocentrals..... *occidentalis* Malloch.
Hind femur without an anteroventral bristle near apex; thorax with three pairs of dorsocentrals; arista very short haired,
deceptor Malloch, new species.
Hind femur with a rather strong outstanding anteroventral bristle near apex; thorax with three pairs of dorsocentrals..... 5
5. Eighth abdominal tergite with a backwardly directed spine at apex of the downwardly directed lateral extension on its posterior angle; hypopygium as Figures 18, 20, and 21..... *fraterna* Loew.
Eighth abdominal tergite with a slightly curved downwardly directed spine at apex of the lateral process on its anterior angle; hypopygium as in Figures 24 and 26..... *pernotata* Malloch.
6. Second, and sometimes part of basal or third segment of hind tarsus blackened, in male the blackened parts generally dilated..... 7
Hind tarsi pale, the segments in male not dilated..... 11
7. Two segments of hind tarsus in male and female partly blackened; in males with a pair of long, apically dilated hairs at apex of the three basal segments..... 8
Only one segment of hind tarsus blackened; no such hairs on tarsus of males..... 9
8. Second and third segments of hind tarsus in both sexes partly blackened, in male broadly dilated; almost all of marginal and submarginal cells of wings blackened..... *ornatipes* Johnson.
Apices of basal and second segments of hind tarsus in both sexes blackened, the second in male broadly dilated; fuscous mark on costal margin of wings sometimes broadly interrupted along costa between cross-veins and again, narrowly, between apices of second and third veins,
melanderi Johnson.
9. Costal margin of wing suffused from apex of auxiliary vein to apex of fourth, less distinctly so between cross-veins; second segment of hind tarsus distinctly but not greatly dilated in male; hind tibia without long fine hairs apically on posterior surface..... *honghi* Coquillett.
Costal margin of wing not suffused proximad of a vertical line drawn from outer cross-vein..... 10
10. The spots at apex of second vein and on middle of ultimate section of third almost directly above outer cross-vein, sometimes connected with it; second segment of hind tarsus of male broader than long; hind tibia of male with some long fine hairs on postero-ventral and posterior surfaces apically..... *compedita* Loew.
The spots above referred to distinctly distad of the one on outer cross-vein and not connected with it; second segment of hind tarsus of male distinctly longer than wide; hind tibia of male without long fine hairs apically,
disjuncta Johnson (*similata* Malloch).
11. The entire costal margin of wings broadly brown including the costal and subcostal cells..... *sheldoni* Coquillett.
Costal margin of wing largely hyaline, clouded only from a little before apex of second vein..... 12
12. Thorax with 4 pairs of strong dorsocentral bristles..... 13
Thorax with 3 pairs of strong dorsocentral bristles..... 14

13. Arista plumose; the fuscous spot on middle of ultimate section of third vein of wing separated from the one at apex of second and much distad of the outer cross-vein; hypopygium as in Figure 19--- *philadelphica* Macquart.
Arista short haired; the spot at middle of ultimate section of third vein connected with the one at apex of second and directly above outer cross-vein; hind femur without preapical anteroventral bristle,
conjuncta Johnson.
Arista short haired; wing markings as in *conjuncta*; hind femur with at least one long preapical anteroventral bristle----- *citreifrons* Malloch.
14. Thorax without differentiated acrostichals except the prescutallar pair; base of third vein pale; hind femur without an outstanding preapical anteroventral bristle; hypopygium as in Figure 22--- *conjuncta* Johnson.
Thorax with well differentiated acrostichal bristles----- 15
15. Hind femur of male without an outstanding bristle near apex on anteroventral surface; base of third vein dark brown, much darker than the remainder of vein; two pairs of acrostichals proximad of anterior pair of dorsocentrals, the anterior pair much weaker than the second,
fuscibasis Malloch.
Hind femur with an outstanding bristle near apex on anteroventral surface in both sexes; base of third vein not darker than remainder of vein; one very strong pair of acrostichals proximad of the anterior pair of dorsocentrals proximad of which there are no well-developed bristles,
incerta Malloch.
16. Wing with both cross-veins broadly infuscated, the infuscation extending well onto the membrane----- 17
Wing with the cross-veins not noticeably darker than the others; if so, the infuscation does not extend onto the membrane----- 18
17. Male with anteroventral and anterior surfaces of hind tibia and anterior surface of basal segment of hind tarsus with long, soft, erect hairs; the last abdominal sternite with an apical series of short black setulae; hypopygium as in Figure 23----- *nubilifera* Malloch.
Male without soft, erect hairs on hind tibia and tarsus; last abdominal sternite with a few weak hairs apically----- *nubila* Melander.
18. Males----- 19
Females----- 29
19. Hind femur with a large number of short setulae on basal half of ventral surface; cheek over half as high as eye; hind tibia without erect, soft hairs----- *littoralis* Malloch.
Hind femur without black setulae on basal half of ventral surface----- 20
20. Hind tibia without erect, soft hairs ventrally----- 21
Hind tibia with some soft, erect hairs ventrally----- 25
21. Claws of mid tarsus unequal in size, the anterior one distinctly larger than the posterior, and peculiarly curved; cheek about half as high as eye; hairs on lower half of back of head and on cheek pale----- *harti* Malloch.
Claws of mid tarsus equal in length, with the normal curvature----- 22
22. Hind femur without a preapical bristle on anteroventral surface; sixth tergite of abdomen fully twice as long as fifth----- 23
Hind femur with a distinct preapical anteroventral bristle----- 24
23. Arista pubescent; hind femur with some fine, short hairs apically on posteroventral surface----- *inaequalis* Malloch.
Arista short haired; ventral surfaces of hind femur entirely bare,
nudifemur Malloch, new species.

24. Eighth abdominal tergite without an obtuse angle caudad of the slender downwardly projecting lateral process; hind femur without erect, soft hairs on posteroventral surface..... *aequalis* Malloch.
Eighth abdominal tergite with an obtuse angle caudad of the process above referred to—i. e., the process is indistinctly proximad of the posterior lower angle (fig. 27); hind femur with fine, erect hairs on posteroventral surface..... *tenuispina* Loew.
25. Hind femur without a long fine hair close to apex on posteroventral surface; last abdominal sternite with two long tapering processes which are pointed at apices..... *bispina* Loew.
Hind femur with one or more long fine hairs near apex on posteroventral surface, sometimes the entire surface has a fringe of hairs; apices of processes of last sternite rounded..... 26
26. The lateral extensions of last abdominal sternite much longer than third antennal segment..... 27
The lateral extensions of last abdominal sternite not longer than third antennal segment..... 28
27. Hind femur with rather dense, long, fine hairs on its entire length posteroventrally; the small spine at base of the slender inner hypopygial forceps long and simple (fig. 28)..... *imitatrix* Malloch.
Hind femur with sparse fine hairs on posteroventral surface which do not form a complete fringes; the small spine at base of the slender inner hypopygial forceps short, furcate (fig. 25)..... *fratercula* Malloch.
28. Seventh abdominal tergite with a group of short, black, setulose hairs at apex on each side; the fine, erect hairs on hind tibia confined to basal half..... *seticauda* Malloch.
Seventh abdominal tergite without such hairs; the fine, erect hairs on hind tibia extending almost the entire length of anteroventral surface and present on basal half of postero-ventral..... *cilifera* Malloch.
29. Hind femur without a distinct preapical anteroventral bristle,
inaequalis Malloch.
Hind femur with a distinct preapical anteroventral bristle..... 30
30. Seventh abdominal tergite compressed, almost cylindrical; cheek about or quite half as high as eye; cross-veins usually as pale as the other veins..... 31
Several abdominal tergite not compressed nor cylindrical; cheek much less than half as high as eye..... 32
31. Hind trochanters with minute black hairs on ventral surface; hairs on back of head and cheeks black..... *littoralis* Malloch.
Hind trochanters with very few weak pale hairs on ventral surface; hairs on lower half of back of head and cheek yellow, only the two bristles on lower margin posteriorly black..... *harti* Malloch.
32. Prosternum with a few black hairs; penultimate section of fourth vein distinctly over half as long as ultimate..... *bispina* Loew.
Prosternum bare..... 33
33. Fore femur with two strong posteroventral bristles; cross-veins of wings noticeably darker than other veins..... *tenuispina* Loew.
Fore femur with three or more posteroventral bristles; cross-veins of wings almost imperceptibly darker than other veins..... *seticauda* Malloch.

LIST OF SPECIES OF THE DISTRICT OF COLUMBIA REGION.

S. aequalis Malloch.—Dead Run, Virginia, June 22, 1915, R. C. Shannon.

S. bispina Loew.—This species has been collected a number of times by various collectors on Plummer Island, Maryland, from May 30 to August 4; and at Beltsville, Maryland, May 25, 1919, McAtee; Dead Run, Virginia, August 3, 1915, V. A. Roberts; and Chain Bridge, Virginia, August 20, 1922, Malloch.

S. cilifera Malloch.—Plummer Island, Maryland, May 9, 1914. R. C. Shannon.

S. citreifrons Malloch.—Beltsville, Maryland, May 21, 1922, Gler. Echo, Maryland, June 18, 1922, Malloch.

S. compedita Loew.—Very common; has been collected on dates ranging from May 11 to October 9; in copula June 23; comes to light and visits the flowers of *Castanea pumila* and *Ceanothus americanus*. V. P. I.

S. conjuncta Johnson.—District of Columbia, D. W. Coquillett; Falls Church, Virginia, June 22, N. Banks; Dead Run, Virginia, June 6, 1914, R. C. Shannon.

S. disjuncta Johnson.—Frequently taken during a season with May 25 and September 8 at its extremes; there are no records from the upper Potomac Valley where so many of the other species have been collected.

S. fraterna Loew.—Dead Run, Virginia, June 22, July 28, 1915. R. C. Shannon; Cabin John, Maryland, July 31; August 8, Glen Echo, Maryland, July 17, August 8, 28, 1921, July 9, 16, August 6, 22, 1922, Malloch.

**S. fuscibasis* Malloch.—Dead Run, Virginia, June 22, 1916, June 29, 1915, R. C. Shannon; Falls Church, Virginia, August 7, N. Banks; Plummer Island, Maryland, June 29, September 13, 1914. McAtee; July 31, 1913, R. C. Shannon.

S. houghi Coquillett.—Has been taken a number of times, but does not appear at all common; season June 4 to August 26; in copula June 4, July 14; visits flowers of *Ceanothus americanus* and *Xolisma ligustrina*. V. P. I.

S. imitatrix Malloch.—Washington, District of Columbia, April 17, 1923, E. N. Cory; Beltsville, Maryland, May 21, 1922, Malloch.

**S. incerta* Malloch.—Common; dates of collection range from June 8 to October 2; comes to light. P. I.

S. nubila Melander.—Arlington, Virginia, June 6, 1914, R. H. Hutchinson.

S. nubilifera Malloch.—Plummer Island, Maryland, June 8, 1914, at light, R. C. Shannon; August 27, 1913, H. S. Barber; Cabin John Bridge, Maryland, June 14, 1913, R. C. Shannon.

S. philadelphica Macquart.—Common: June 9 and September 28 mark the extremes of the season during which it has been collected; comes to light. P. I.

S. seticauda Malloch.—Plummer Island, Maryland, May 30, 1913, R. C. Shannon; June 2, 1912, July 19, 1914, McAtee.

S. tenuispina Loew.—Great Falls, Virginia, June 21; Falls Church Virginia, June 24, N. Banks; Plummer Island, Maryland, May, 1908, William Palmer; May 23, 1914, June 9, 1913, R. C. Shannon; May 24, 1914, June 29, 1913, McAtee; Glen Echo, Maryland, August 2, 1922, Malloch.

DESCRIPTIONS OF TWO NEW SPECIES.

SAPROMYZOSOMA DECEPTOR Malloch, new species.

Female.—Similar to *fraterna* in color. Most closely allied to *notata* Fallen, differing in having the wing markings less distinct, the arista with its longest hairs not noticeably longer than its basal diameter, and the bristles over all not so long and strong.

Length, 3 mm.

Type and one paratype.—White Mountains, New Hampshire (Morrison). Type, Cat. No. 26390. U.S.N.M.

SAPROMYZOSOMA NUDIFEMUR Malloch, new species.

Male.—Agrees with *inaequalis* and its allies in color, but in the two specimens before me there is a dark part on third vein beyond outer cross-vein at the point where the dark spot is present in those forms that have distinct spots on wings. There are no hairs between the acrostichal bristles but otherwise the thorax is as in *inaequalis*. The tergites of abdomen descend so far that it is impossible to distinguish the fifth sternite, but it has evidently no long processes.

Length, 3 mm.

Type and one paratype.—Kaslo, British Columbia, June 23 and July 7 (R. P. Currie). Type, Cat. No. 26391. U.S.N.M.

Genus PERISCELIS Loew.

This genus is somewhat doubtfully placed in the Sapromyzidae owing to the lack of mesopleural and preapical tibial bristles as well as the presence of but one orbital bristle. The divergent postvertical bristles and peculiar subcostal vein, which is similar to that of the Trypetidae, distinguish the genus from any other in the three families dealt with in this paper, but it is more evidently related to Sapromyzidae than to any other family.

At present it is recorded only from Illinois, where it has been taken on sap exuding from trees, but its small size and habits probably accounts for its absence from collections. Malloch redescribed this genus under the name *Phorticoides* with one species, *flinti* Malloch, which may be synonymous with *annulata* Fallen, a European species.

GENUS TRYPETISOMA Malloch, new genus.

This genus is erected for the reception of *Sapromyza stictica* Loew. Characters as indicated in generic key on page 17.

Genotype.—*Sapromyza stictica* Loew.

T. stictica (Loew).—Originally described from District of Columbia material. For specific characters see key to species of *Sapromyza*, p. 17.

BIBLIOGRAPHY.

COQUILLET, D. W.

New species of Sapromyzidae.

Can. Ent., vol. 30, no. 11, November, 1898, pp. 277-280.

Describes *Sapromyza magna* from District of Columbia material, p. 279.

New acalyptrate Diptera from North America.

Journ. N. Y. Ent. Soc., vol. 10, no. 4, December, 1902, pp. 177-191.

Describes *Sapromyza glauca* from Marlboro, Maryland, p. 177.

LOEW, H.

Diptera Americae septentrionalis indigena. Complete work, 1872.

Describes the following three species from our region:

Sapromyza umbrosa District of Columbia, vol. 1, p. 132.

Sapromyza stictica District of Columbia, vol. 1, p. 133.

Laurania flaviceps District of Columbia, vol. 2, p. 110.

MALLOCH, J. R.

Some undescribed North American Sapromyzidae.

Proc. Biol. Soc. Wash., vol. 27, pp. 29-42, pl. 2, March 20, 1914.

Records seven species from the vicinity of Washington, District of Columbia, of which six are described as new. One of these *Sapromyza similata* proved to have been previously described as *S. disjuncta* Johnson.

Some new North American Sapromyzidae (Diptera).

Can. Ent., vol. 52, nos. 6-7, June-July, 1920, pp. 126-128.

Sapromyza fuscibasis, new species is described from Plummer Island, Maryland.

Some new genera and species of Lonchaeidae and Sapromyzidae (Diptera.)

Proc. Ent. Soc. Wash., vol. 25, no. 2, February, 1923, pp. 45-53.

Eight new species from this region are described.

MELANDER, A. L.

A synopsis of the Sapromyzidae.

Psyche, vol. 20, no. 2, April, 1913, pp. 57-82, pl. 3.

Records five species from the District of Columbia.

EXPLANATION OF PLATES.

PLATE 1.

Structural details of Lonchaeidae and Sapromyzidae.

FIGURE 1. *Lonchaea polita*, hypopygium of male, ventral view, one side.

2. *Lonchaea winnemana*, head, dorsal view.

3. *Lonchaea nudifemorata*, hypopygium of male, ventral view, one side.

4. *Lonchaea winnemana*, wing.

5. *Minettia americana*, hypopygium of male, ventral view, one side.

6. *Minettia americana*, same, dorsal view, one side.

- FIGURE 7. *Minettia americana*, same, lateral view.
 8. *Minettia obscura*, hypopygium of male, ventral view, one side.
 9. *Minettia lupulina*, hypopygium of male, ventral view, one side.
 10. *Sapromyza serrata*, hypopygium of male, side view.
 10a. *Sapromyza serrata*, inferior forceps.
 11. *Sapromyza obtusilamellata*, hypopygium of male, ventral view.
 12. *Sapromyza obtusilamecellata*, same, rear view.
 13. *Sapromyza annulata*, hypopygium of male, rear view.
 13a. *Sapromyza annulata*, inferior forceps.
 14. *Sapromyza pictiventris*, hypopygium of male, rear view.
 14a. *Sapromyza pictiventris*, inferior forceps.
 15. *Sapromyza quadrilineata*, hypopygium of male, rear view
 15a. *Sapromyza quadrilineata*, inferior forceps.

PLATE 2.

Hypopygia of Sapromyzidae.

- FIGURE 16. *Camptoprosopella verticalis*, genitalia of female, ventral view, one side.
 17. *Camptoprosopella verticalis*, hypopygium of male, side view.
 18. *Sapromyzosoma fraterna*, hypopygium of male, side view.
 19. *Sapromyzosoma philadelphica*, hypopygium of male, side view.
 20. *Sapromyzosoma fraterna*, inferior forceps of male.
 21. *Sapromyzosoma fraterna*, hypopygium of male, ventral view, one side.
 22. *Sapromyzosoma conjuncta*, hypopygium of male, side view.
 23. *Sapromyzosoma nubilifera*, hypopygium of male, side view.
 24. *Sapromyzosoma pernotata*, inferior forceps.
 25. *Sapromyzosoma fratercula*, hypopygium of male, side view.
 26. *Sapromyzosoma pernotata*, hypopygium of male, side view.
 27. *Sapromyzosoma tenuispina*, superior forceps.
 28. *Sapromyzosoma imitatrix*, hypopygium of male, side view.

ADDENDUM.

After the manuscript of this paper was sent to the press a paper by Dr. A. H. Sturtevant appeared in which he records *Periscelis annulata* Fallen from Alabama, South Dakota, and New Mexico.⁶

In the same paper he describes a new genus and species, *Sphyroperiscelis wheeleri* Sturtevant, from Massachusetts. This genus differs from *Periscelis* in having the frons much wider, about three times as wide as either eye, the antennal bases separated by about as great a distance as either is from eye, not rather closely approximated, the front of frons flattened, and the outer cross-vein of wing lacking. We have not seen the genus.

⁶ Amer. Mus. Novit., No. 76, p. 1, May 21, 1923.